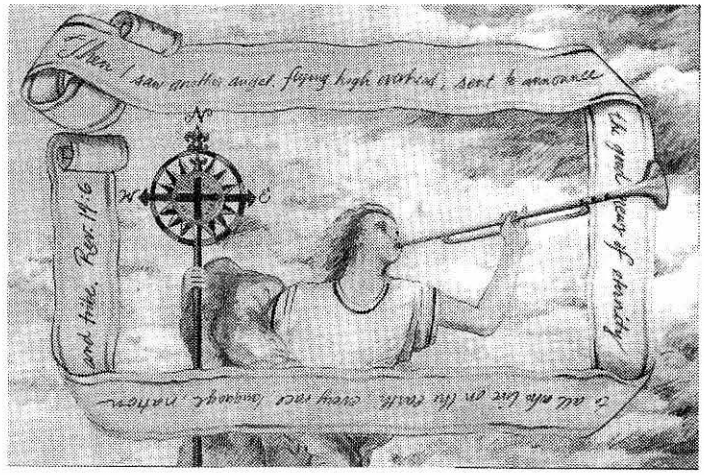
WEWN



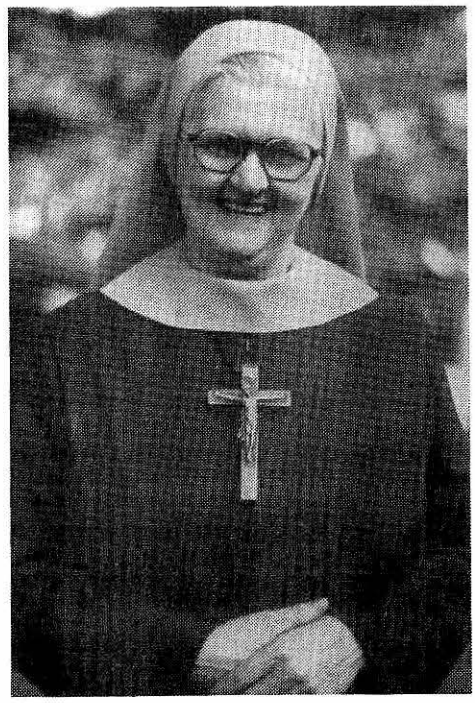
Shortwave Radio To Reach the Heart of the People

By John D. Stephens

For the past ten years, a steady stream of shortwave broadcast stations have come on the air from the United States, most with religious programming. The latest of these is WEWN — the Catholic radio service of the Eternal Word Television Network (EWTN), headquartered near Birmingham, Alabama.

Founded in 1981 and incorporated on August 15, 1991, EWTN has become the largest religious cable network in the world in terms of subscribers (30 million) and covers the continental United States, Canada, Alaska, Hawaii, Mexico, Puerto Rico, and most of Central America. EWTN's founder and Chairman of the Board, Mother M. Angelica, admits that building a cable network was never in her plans. "My desire to feed the people of God was a constant incentive," she says.

A cloistered Franciscan nun, Mother Angelica recognized the need to reach people in other parts of the world where television sets were few, and saw radio as the perfect tool to accomplish this goal. "My dream is to reach the common man," says Mother Angelica, "encourage him to pray and aspire to be holy, provide family programming, and be a vehicle of evangelization for the Church." A particular need was seen in the countries of Eastern Europe where, Mother Angelica says, "There are millions of people in these newly freed Communist countries who have never heard of God or who have been told there was no God. I want to reach the heart of these people".



Founder and Chairman of the Board of EWTN, Mother M. Angelica.

A Chance Meeting

With a shortwave broadcast station still in the "just a dream" phase, Mother Angelica's desire to add a worldwide radio voice for EWTN became well-known in Catholic religious circles, and ultimately came to the attention of a wealthy Dutch businessman and philanthropist, Piet Derksen, and his wife Trude. A devout Catholic, Mr. Derksen made his fortune in sportswear manufacturing and amusement park development before he retired.

Through a chance meeting, Mr. Derksen encountered Mother Angelica, who outlined her plans to spread the Catholic faith throughout the world via radio. Impressed with Mother Angelica's vision and determination, the Derksens donated all funds necessary to build what would soon become WEWN.

Original plans called for two transmitters to be located near Rome, Italy (where EWTN owns six production studios), and two near their headquarters just outside Birmingham, Alabama. But, after two fruitless years of trying to get a license to construct a station in Italy, Mother Angelica decided she no longer wanted to deal with the Italian government bureaucracy. She made plans to locate all four transmitters at a

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Transmitter master control room, complete with Yaesu FRG-8800 (upper left).

single site near the EWTN headquarters, Our Lady Of The Angels monastery, in the Birmingham suburb of Irondale.

The Work Begins

In April 1992, a suitable site was chosen atop one of Alabama's highest peaks — 1200 foot high Minor's Mountain at the border of Shelby and St. Clair counties, near the community of Vandiver. Only about 30 miles from the monastery, the site was convenient to EWTN headquarters. Covered with dense forest growth, over 100 acres of trees had to be cleared to make way for the antenna farm. Additionally, a manmade pond had to be drained, and special foundations needed to be constructed to provide sufficient stability for the antenna masts on the sloping terrain. Work on the transmitter building and maintenance buildings soon followed, and a target date of December 28, 1992, was set to begin regular broadcasts.

A Powerful Dilemma

Shortly after work began at the transmitter site, some local residents sued EWTN, saying they resented WEWN's use of an 80 year old logging road (which provides the only means of accessing the site at the top of the mountain), the clearing of the peak, and bringing in Alabama Power Company (also named in the lawsuit) to install a substation and run power lines to the station across land served by another, smaller power company — Coosa Valley Power. In conjunction with these grievances, some complaints were also entered citing decreased property values and destruction of the environment.

Although local residents had chosen to be served by Coosa Valley Power, WEWN is a large enough customer that it could make its own choice.

According to Alabama Power, establishing the powerline route to the station was handled according to standard procedures — complaints were heard, alternative routes were examined for running powerlines and accessing the mountaintop site, and court permission for right of way was obtained. An Alabama Power corporate spokesman summed up the situation by saying, "There will always be people not satisfied. It was a difficult location. The alternatives were not acceptable."

Officials of both EWTN and Alabama Power have been working on a solution and it seems now that the matter may soon be put to rest, as an Alabama Circuit Court judge recently ruled in favor of a proposed cash settlement by Alabama Power to some of the residents.

Time Flies

Work on the transmitter site, however, continued at a feverish pace. "I never saw time fly by fast," said Station Manager Frank Phillips, a former broadcast engineer for the Christian Science Monitor's WSHB in Cypress Creek, South Carolina. "Amidst work on all the other projects, our transmitter arrived here in the mud on September 14, 1992, before the transmitter building was even complete. Here we were with a startup date of less than four months, and we still had to complete the building, install four transmitters, and do our testing — all before December 28th."

With a couple of experienced engineers hired from the Voice of America's Phillippines relay station, as well as consulting engineers from Continental Electronics (the manufacturer of WEWN's transmitters), the first transmitter was readied for testing in what Mr. Phillips calls record time.

Tests of the first transmitter began in September of 1992, with a loop tape consisting of

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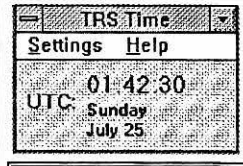

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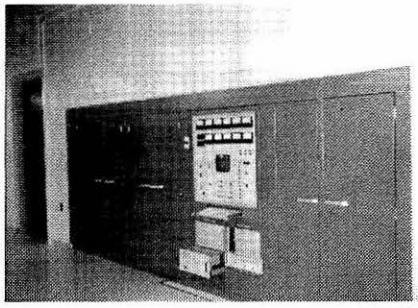

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One of four 500 kW Continental 420-C transmitters.

WEWN's distinctive interval signal, interspersed with a station identification. Testing was conducted, accord Mr. Phillips, "in a very precise manner." Even though the output power for the transmitter was 500 kilowatts, a power of only 300 kilowatts was used while tests were being conducted, which reduced chances of equipment damage while engineers worked out any bugs in the system.

With testing complete, and construction on all the buildings finished, the on-air target date of December 28th arrived. On hand to dedicate the new station were the Derksen's, as well as Mother Angelica. Her dream became reality as the first broadcast commenced from WEWN, which surpassed WSHB as the largest privately-owned shortwave broadcasting station in the world.

A Brief Setback

Shortly after regular broadcasts began, a complaint was received from the Sheriff's department of neighboring St. Clair county. WEWN's signal was somehow causing interference to their radio communications. A spurious emission or harmonic was the culprit, and WEWN promptly ceased broadcasting until a solution to the problem could be engineered.

With the cooperation of the Sheriff's department, and even the Sheriff himself, they were able to explain the problem to the engineers at Continental, who, after about a week, engineered a solution. While the transmitter was being modified, WEWN engineers went to the Sheriff's department repeater site and reworked the system completely. They also installed a new ground system and various filters to help prevent any further interference. After about three weeks, WEWN returned to the air.

State of the Art Facilities

Piet Derksen's money ($20 million so far) has bought the best for WEWN, as their facilities are truly "state of the art." Four 500 kilowatt Continental 420-C transmitters pump out WEWN's programs to all corners of the globe. The newest model in their class, these transmitters are "the most modern and powerful made in the world today," says Matt Scalici, Senior Vice President of Engineering for EWTN.

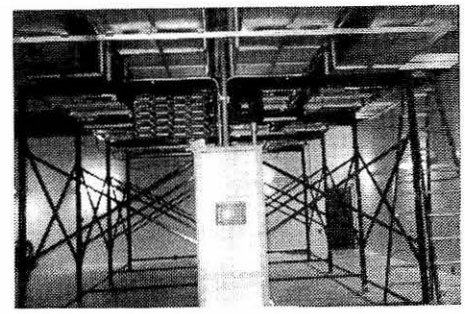
The computer-controlled 420-C utilizes a keyboard interface that allows operational commands to be entered quickly and easily. A video screen provides extensive graphic representations of every facet of the transmitter's operation, and is particularly adept at helping an engineer troubleshoot. Should a transmitter malfunction occur, engineers simply enter a quick command on the keyboard, and a detailed schematic of the transmitter appears on the screen, complete with the offending transmitter part flashing in an outline of yellow.

Each of the transmitters operates with a feature called Carrier Control Modulation (CCM), which is a method for reducing the amount of carrier that is transmitted. Use of CCM enables the transmitter to work less to get the same amount of power out to the sidebands. According to Mr. Phillips, "It operates under the same principle as the overdrive on a car."

WEWN Schedule

START		MHz	LANGUAGE
0000	0100	13.710	ENGLISH
0000	0100	9.410	ALBANIAN
0000	0700	7.425	ENGLISH
0000	0800	9.985	SPANISH
0100	0200	13.710	ARABIC
0100	0200	9.410	ROMANIAN
0200	0300	11.715	RUSSIAN
0200	0300	9.370	UKRAINIAN
0300	0400	9.370	BULGARIAN
0300	0400	11.580	BELARUSSIAN
0400	0500	9.350	CZECH/SLOVAK
0400	0500	9.370	LITHUANIAN
0500	0600	9.370	HUNGARIAN
0500	0600	9.350	SERBIAN/ CROATIAN
0600	0700	9.350	POLISH
0600	0700	13.710	ENGLISH
0700	0800	9.430	ENGLISH
0700	0800	11.580	ENGLISH
0700	0900	9.350	ENGLISH
0800	0900	11.580	DUTCH
0800	1000	9.985	PORTUGUESE
1200	1300	15.695	ENGLISH
1200	1500	9.350	ENGLISH
1200	2000	18.930	SPANISH
1300	1400	13.710	MANDARIN
1300	1700	17.535	ENGLISH
1400	1500	17.510	ARABIC
1500	1600	17.510	ENGLISH
1500	2000	11.735	SPANISH
1600	1700	15.695	DUTCH
1700	1800	15.695	FRENCH
1700	2200	13.615	ENGLISH
1800	2000	15.695	ENGLISH
2000	2100	17.840	SPANISH
2000	2200	15.695	FRENCH
2000	2200	18.930	PORTUGUESE
2100	2200	17.840	PORTUGUESE
2200	2300	13.615	GERMAN
2200	0000	17.760	SPANISH
2200	0000	11.820	PORTUGUESE
2200	0000	7.425	ENGLISH
2300	0000	15.650	MANDARIN

PLEASE NOTE: ALL TIMES ARE UTC. TIMES AND FREQUENCIES ARE SUBJECT TO CHANGE.



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The antenna switching matrix.

A huge, computerized, antenna-switching matrix occupies a large room directly behind the four transmitters. This point controls the transmitter feeds to four enormous curtain array antennas located around the perimeter of the 180 acre mountaintop complex. Should the need arise to switch antennas due to malfunction or any other reason, the change can be made within seconds by entering a couple of commands via a keyboard interface. The switching matrix also has a video screen, which operates in much the same manner as that of the transmitters.

Program signals are received at the transmitter site via satellite downlink and patched to the transmitter master control room. Up to four program channels at once can be received, and each channel is routed to one of four audio processing racks. Each rack corresponds to a specific transmitter. If a problem should occur with a certain transmitter, or any other piece of equipment that prohibits normal operations, any program can be rerouted to another transmitter with ease. "Coupled with our antenna switching matrix, we have total flexibility between programming, transmitters, and antennas," says Mr. Phillips.

No expense was spared in the construction of the transmitter building, either. Plush carpet, fine office furniture and other accommodations such as you would find in one of the nicer hotels were quite evident. There is even a guest room, complete with a bed and all the comforts of home!

Solely Religious Programming

Current WEWN programming consists of scripture readings, prayer, audio from Mother Angelica's television show, and other devotional programs. To date, almost 7000 one-hour shows have been produced and prerecorded. Programs in English, French, Spanish, Portuguese, and Mandarin are recorded at the production studios at the monastery in Irondale,

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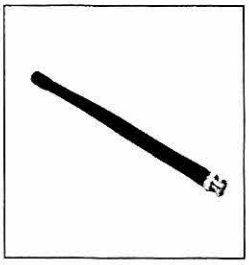

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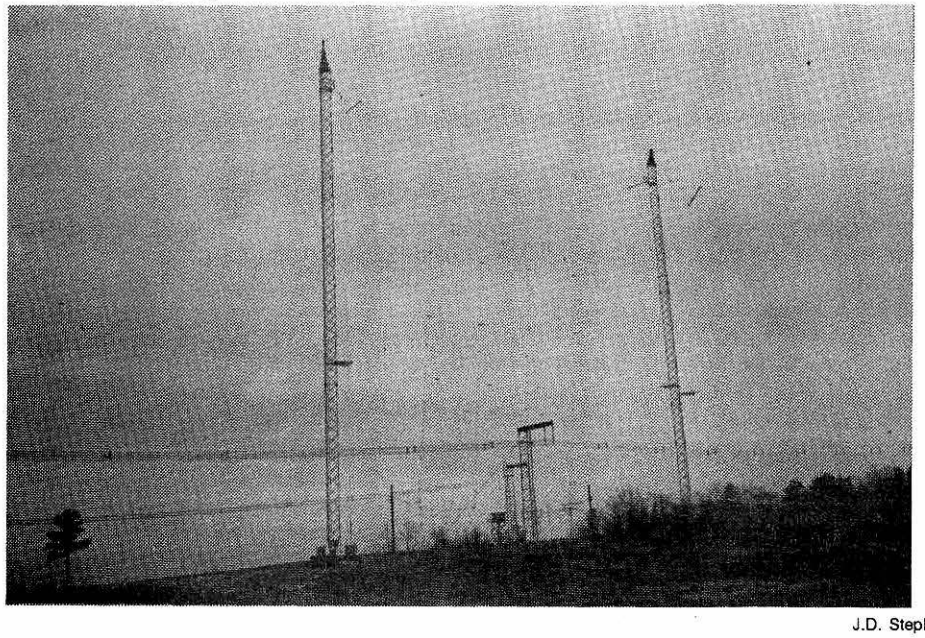
with programs in 17 other languages recorded at EWTN studios in Italy. There are plans to add 30 more languages in the future.

WEWN programming is solely religious — no news, weather, current events programs, or DX tips. Manager says "We are Catholic, but I feel that a large part of our programming would be of interest to people of all faiths...Many of our listeners write to say... 'Even though you are a Catholic station, I find much of your programming equally applicable to me and my religion.'"

Within the first five months on the air, WEWN received almost 1500 reception reports from over 50 countries on all continents. Very pleased with the reception as reported by listeners, Mr. Phillips says that about 90 percent of the reception reports have indicated a SINPO rating of three and better, and about 80 percent indicate a rating of four and better. WEWN readily verifies reception reports with an attractive QSL card, and reports can be sent to P.O. Box 100234, Birmingham, Alabama 35210, USA. The station would very much appreciate a signal rating using the SINPO code (Signal, Interference, Noise, Propagation, Overall Merit, on a 1-5 scale).



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One of four curtain array antennas.

Looking to the Future

With her eye on the future, Mother Angelica has great plans for WEWN, and envisions being able to someday send prayer messages to any part of the world in the event of a catastrophe such as an earthquake, hurricane, or other disaster. "The most vital need for emergency victims is prayer," Mother Angelica says, "They need to pray." According to Mother, "Before the bulldozers get there, I want to get there and give them hope."